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Attorney Docket No.: 105030

## AMENDMENT TRANSMITTAL

In re the Application of

Nobuaki HASHIMOTO

Group Art Unit: 2815

Application No.: 09/486,561

Examiner: L. Cruz

Filed: February 29, 2000

For: SEMICONDUCTOR DEVICE AND METHOD THEREOF, CIRCUIT BOARD AND ELECTRONIC INSTRUMENT

Director of the U.S. Patent and Trademark Office  
Washington, D.C. 20231

Sir:

Transmitted herewith is an Amendment in the above-identified application.

- ☐ Entitlement to small entity status is hereby asserted.  
☐ Small entity status of this application has been established.

The filing fee has been calculated as shown below:

	(Column 1)	(Column 2)	(Column 3)
	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NO. PREVIOUSLY PAID FOR	PRESENT EXTRA
TOTAL CLAIMS	*20 MINUS	**20	=0
INDEP CLAIMS	*4 MINUS	***3	=1
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEP. CLAIM			

SMALL ENTITY	
RATE	ADD'L FEE
x 9	\$
x 42	\$
+ 140	\$
	\$

OTHER THAN A SMALL ENTITY	
RATE	ADD'L FEE
x 18	\$
x 84	\$84.00
+280	\$
	\$84.00

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\* If the entry in Column 1 is less than the entry in Column 2, write "0" in Column 3.

\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, write "20" in this space.


\*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, write "3" in this space.

The "Highest Number Previously Paid For" in this space (Total or Independent) is the highest number found from the equivalent box in Column 1 of a prior Amendment or the number of claims originally filed.

- ☐ Check No. \_\_\_\_\_ in the amount of \$\_\_\_\_\_ is attached. The Director is hereby authorized to charge any other fees that may be required to complete this filing, or to credit any overpayment, to Deposit Account No. 15-0461. Two duplicate copies of this sheet are attached.

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AUTHORIZATION  
Please grant any extension  
necessary for entry;  
Charge any fee due to our  
Deposit Account No. 15-0461

Respectfully submitted,

  
James A. Oliff  
Registration No. 27,075

Thomas J. Pardini  
Registration No. 30,411

JAO:TJP/

Date: November 14, 2001

**PATENT APPLICATION**

**RESPONSE UNDER 37 CFR §1.116  
EXPEDITED PROCEDURE  
TECHNOLOGY CENTER ART UNIT 2815**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Nobuaki HASHIMOTO

Application No.: 09/486,561

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For: SEMICONDUCTOR DEVICE AND METHOD THEREOF, CIRCUIT BOARD  
AND ELECTRONIC INSTRUMENT

Group Art Unit: 2815

Examiner: L. Cruz

Docket No.: 105030

(NE)  
14/B

11-20-01  
T. Flower

**AMENDMENT AFTER FINAL REJECTION UNDER 37 CFR §1.116**

Director of the U.S. Patent and Trademark Office  
Washington, D.C. 20231

Sir:

In reply to the Office Action mailed August 14, 2001, please amend the above  
identified application as follows:

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ART UNIT 2800

**IN THE CLAIMS:**

11/20/2001 SSURLES 00000004 150461 09486561  
01 FC:102 84.00 CH

Please replace claim 8 as follows:

8. (Amended) A semiconductor device, comprising:
- a semiconductor chip having electrodes; a substrate having an interconnect pattern; and an adhesive;
  - wherein said electrodes and said interconnect pattern are electrically connected; and
  - wherein said adhesive has a first portion interposed between surface of said substrate on which said interconnect pattern is formed and surface of said semiconductor chip

on which said electrodes are formed, and a second portion formed next to said first portion and on at least a part of lateral surface of said semiconductor chip at least a part of said second portion having a thickness greater than said first portion.

Please add new claims 16-20 as follows:

--16. The semiconductor device as defined in claim 8, wherein at least a part of said second portion has a thickness substantially the same as said semiconductor chip--

--17. The semiconductor device as defined in claim 8, wherein each of said electrodes includes a bump, and wherein a part of said second portion contacts said lateral surface of said semiconductor chip, said lateral surface excluding a lateral surface of said bump.--

--18. The semiconductor device as defined in claim 8, wherein said adhesive is formed so as to cover all of said lateral surface of said semiconductor chip.--

--19. A semiconductor device comprising:

a semiconductor chip having electrodes, each of said electrodes including a bump;

a substrate having an interconnect pattern; and

an adhesive;

wherein said electrodes and said interconnect pattern are electrically connected; and

wherein said adhesive is interposed between a surface of said substrate on which said interconnect pattern is formed and a surface of said semiconductor chip on which said electrodes are formed, so as to cover a lateral surface of said semiconductor chip, said lateral surface excluding a lateral surface of said bump.--

--20. A semiconductor device comprising:  
a semiconductor chip having electrodes, each of said electrodes including a bump;  
a substrate having an interconnect pattern; and  
an adhesive;  
wherein said electrodes and said interconnect pattern are electrically connected; and  
wherein said adhesive is interposed between a surface of said substrate on which said interconnect pattern is formed and a surface of said semiconductor chip on which said electrodes are formed so as to cover all the lateral surface of said semiconductor chip, said lateral surface excluding a lateral surface of said bump.

REMARKS

Claims 8-12 and 14-20 are pending, with non-elected claims 1-7 being withdrawn from consideration by the January 16, 2001 Response to Restriction Requirement. By this Amendment, claim 8 is amended and new claims 16-20 are added. Reconsideration of the application in view of the foregoing amendments and the following remarks is respectfully requested.

The attached Appendix includes marked-up copies of each claim (37 C.F.R. §1.121(c)(1)(ii)).

Entry of the amendments is proper under 37 CFR §1.116 since the amendments: (a) place the application in condition for allowance (for the reasons discussed herein); (b) do not raise any new issue requiring further search and/or consideration (since the amendments amplify issues previously discussed throughout prosecution); (c) satisfy a requirement of form asserted in the previous Office Action; (d) do not present any additional claims without

canceling a corresponding number of finally rejected claims; and (e) place the application in better form for appeal, should an appeal be necessary. Entry of the amendments is thus respectfully requested.

I. CLAIMS 8-12, 14 and 15 DEFINE PATENTABLE SUBJECT MATTER

The Office Action rejects claims 8-12, 14 and 15 under 35 U.S.C. §102(e) as being unpatentable over U.S. Patent 5,783,465 to Canning. This rejection is respectfully traversed.

The Office Action asserts that Canning discloses all of the features of the claimed invention. However, it is respectfully submitted that Canning does not disclose a semiconductor chip having electrodes; a substrate having an interconnect pattern; and an adhesive; wherein said electrodes and said interconnect pattern are electrically connected; and wherein said adhesive has a first portion interposed between surface of said substrate on which said interconnect pattern is formed and surface of said semiconductor chip on which said electrodes are formed, and a second portion formed next to said first portion and on at least a part of lateral surface of said semiconductor chip at least a part of said second portion having a thickness greater than said first portion, as claimed in claim 8.

That is, as shown in Figure 5B, lateral surface 28 is covered with an adhesive substance. It is respectfully submitted that Canning does not disclose such features.

Canning discloses, in Figures 1 and 2, that the adhesive 15 is placed between the component assembly 13 and substrate 11. Nowhere does Canning teach, disclose or suggest a lateral surface of a semiconductor chip having an adhesive that covers at least part of the lateral surface.

In view of the foregoing remarks, it is respectfully submitted that Canning does not disclose the features of claims 8-12, 14, and 15. Accordingly, withdrawal of the rejection under 35 U.S.C. §102(e) is respectfully requested.

II. CONCLUSION

In view of the foregoing amendments and remarks, Applicant respectfully submits that claims 8-12, 14 and 15 are now in condition for allowance.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,



James A. Oliff  
Registration No. 27,075

Thomas J. Pardini  
Registration No. 30,411

JAO:CCH/mdw

Date: November 14, 2001

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